Effect of Concurrent and Isolated Swissball and Jump Rope Training on Leg Strength among Football Players

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Abstract

The purpose of the study was to find out the Effect of Concurrent and Isolated Swissball and Jump rope Training on Leg Strength among men football players. To achieve this purpose sixty men Football players from various colleges in and around Chennai, were selected as subject at random and they were divided in to four equal groups of each fifteen. Group I underwent Swissball Training (SBT) Programme, Group-II underwent Jump Rope Training (JRT). Programme for three days per week for twelve weeks, Group III underwent Swissball Training (CT) programme for three days per week for first six weeks and Jump rope Training programme for three days per week for the remaining six weeks and Group IV was acted as Control Group CG). Among the strength parameters leg strength was selected as criterion variable. All the subjects were tested on selected dependent variables, prior and immediately after the Training programmes. The analysis of covariance was used to analysis the significant different if any among the groups and the 0.05 level of confidence was fixed as the level of significance. The result of the study revealed that the Concurrent Training group had significant improvement on Leg Strength then the isolated training group.

Key words: Jump rope training, Swiss ball training, Football Players.

Introduction

The game football was an ancient sport, which was played all around world and attracts large numbers of fans in the world population. The game consist of the technical, tactical, physical, physiological and psychological characteristic within these the muscular strength as well as muscular endurance and cardiovascular endurance play a vital role for the better performance. There was plenty of studies conducted isolated training and concurrent training researches were carried out on all the above components, I just go through some of the research results which revels the effect of footballers strength parameters, within these i got an idea to design a concurrent training programme with varied nature of trainings. for that I select the Swiss ball training and jump rope training, Swiss ball training was based the isotonic and isometric nature, the jump rope training was based on the explosive nature of course there was many studies were done with the two trainings. In this study i would like to find out what's the concurrent and isolated effect of these two trainings and which is the best training to improve the footballer's leg strength. The research hypothesis was formulated as ; Concurrent swissball and jumprope training may significantly improve the Leg strength of college football players rather than the isolated swissball training and isolated jump rope training.

Review of Literature

Wong PL (2010 Mar; 24) was concluded that with 39 soccer players (EG, n=20 and CG, n=19) regular soccer training with additional Muscular Strength training and high intensity interval training twice per week throughout the 8 weeks of training, was significantly increases

the explosive performance (vertical jump) and aerobic endurance (10 & 30 meters sprint), among Professional Hong Kong soccer players. Kanchon bandodhgag (2001,oct) was concluded that the regular participation in rope skipping was significantly improved speed, leg muscular power and cardiovascular efficiency but the above program was not significantly improved on agility. Powla.l (1996 jan) studied the rope skipping effect on boys, skipped five days each week for ten weeks. The following significant improvements were noted over the ten week period. Greater leg strength, better jumping ability faster running speed, nice flexibility, broader should, deeper chests, increased calf size and improved heart responses. Consequences of AD.Faigenbaum and WL.Westcott 's (2008-oct) research has shown that swiss ball exercise was increased muscular strength and muscular endurance as a result of regular participation in a progressive swissball exercise programme for ten weeks. A six-time U.S National Wrestling Champion, Olympic Wrestling, Jump rope training expert, Official jump rope Conditioning Consultant of U.S Olympic teams from 1996 to 2000 and Skipping Wizard Buddy Lee, (2001) has used his Jump rope techniques to train top amateur and professional Athletes, Basketball, Soccer, Skating, Tennis, wreshling Badminton, judo, volleyball and swimming. Skipping with rope provides a good means for exercise the hole body and thus promoting general fitness of the body. In addition it strengthening the leg and arm Muscles, skipping helps in improving Cardio-respiratory efficiency (Reet Howell, 1994). Chendrasekaran (2003) has found that the skipping exercise had significant relationship with physical fitness and performance variables of school Volleyball players.

Methodology

The purpose of the study was to find out the effect of concurrent and isolated swissball and jump rope training programme on leg strength among college men football players. To achive this purpose of the study sixty football players were randomly selected as subject from various colleges in and around Chennai. The selected subjects were equally divided in to four groups of fifteen in each. Swiss ball Training Group (SBTG n=15) underwent isolated swissball training, Jump Rope Training Group (JRTG n=15) underwent isolated jump rope training for three days per week for twelve weeks, where as Concurrent Swissball and JumpRope Training Group CSJTG (n=15) underwent swissball training for three days in a week for the first six weeks in the twelve weeks of training programme. The remaining six weeks the same group was underwent jump rope training and there was no any specific training for the control group (CG n=15). Among the strength parameters leg strength was selected as criterion variable all the group subjects were tested on selected dependent variable prior and immediately after the twelve weeks of training programme as pre and post tests. The analysis covariance was used to analysis the significant difference if any among the four groups. The significant level was fixed as 0.05 level of confidence. Whenever obtained 'F' ratio was found to the significant level, the suitable post hoc test was used. For that the scheffe's post hoc test was applied to find the paired mean difference among the groups.

Training Protocol

The Experimental groups were given isolated and combined swissball and jump rope training for twelve weeks detailed schedule was given bellow as Table I, II and III.

Table -I
Isolated Swissball Training Schedule

Exercise	First two week			Second two week			Last two week		
	Set	Rep.	Rest (sec)	Set	Rep.	Rest (Sec)	Set	Rep.	Rest (sec)
Hamstring rolls	3	6-8	120	4	8-10	100	4	10-14	90
Swiss ball squat	3	6-8	120	4	8-10	100	4	10-14	90
Swiss ball lunge	3	6-8	120	4	8-10	100	4	10-14	90
Single Leg raise	3	6-8	120	4	8-10	100	4	10-14	90
Single Leg cross	3	6-8	120	4	8-10	100	4	10-14	90

Table –II
Isolated Jump Rope Training Schedule

Exercise	First two week			Second two week			Last two week		
	Set	Duration	Rest (sec)	Set	Duration	Rest (Sec)	Set	Duration	Rest (sec)
Double jump	3	2 min	120	4	2 min	100	4	3 min	90
Alternate foot jump	3	2 min	120	4	2 min	100	4	3 min	90
Jogging steps	3	2 min	120	4	2 min	100	4	3 min	90
Front kicks	3	2 min	120	4	2 min	100	4	3 min	90
Combination jumps	3	2 min	120	4	2 min	100	4	3 min	90

Table-III

Concurrent Training Schedule Swissball Training

Exercise	First week			Second week			Third week		
	Set	**Rep.**	**Rest (sec)**	**Set**	**Rep.**	**Rest (Sec)**	**Set**	**Rep.**	**Rest (sec)**
Hamstring Rolls	3	6-8	120	4	8-10	100	4	10-14	90
Swiss ball squat	3	6-8	120	4	8-10	100	4	10-14	90
Swiss ball lunge	3	6-8	120	4	8-10	100	4	10-14	90
Single Leg Raise	3	6-8	120	4	8-10	100	4	10-14	90
Single Leg Cross	3	6-8	120	4	8-10	100	4	10-14	90
JUMP ROPE TRAINING									
Exercise	Fourth week			Fifth week			Last week		
	Set	counts	Rest (sec)	Set	Counts	Rest (Sec)	Set	counts	Rest (sec)
Basic Double Jump	3	2 min	120	4	2 min	100	4	3 min	90
Alternate Foot Jump	3	2 min	120	4	2 min	100	4	3 min	90
Jogging Steps	3	2 min	120	4	2 min	100	4	3 min	90
Front Kicks	3	2 min	120	4	2 min	100	4	3 min	90
Combination Jumps	3	2 min	120	4	2 min	100	4	3 min	90

Statistical Analysis

The collected data on leg strength of all the groups were statistically analyses, by using the analysis of covariance and the results was presented in table IV

Table-IV
Analysis of Covariance of the Data on Leg Strength of Pre and Post Test Scores of Swissball, Jump Rope, Concurrent Swissball and Jump Rope Training Group and Control Group

Test	Swissball Training Group	Jump Rope Training Group	Concurrent Swissball &Jump Rope Training	Control Group	Source of Variance	Sum of Square	df	Mean Squares	'F' ratio
Pre Test mean	90.83	90.84	90.86	90.84	Between	0.01	3	0.03	0.75
SD	0.214	0.237	0.221	0.240	Within	2.27	56	0.04	
Post Test mean	95.88	92.82	96.87	90.86	Between	19.4	3	63.8	167.89*
SD	0.209	0.269	0.198	0.223	Within	21.43	56	0.38	
Adjusted post Test mean	95.46	91.92	96.59	90.84	Between	169.17	3	56.39	48.61*
					Within	61.42	55	1.16	

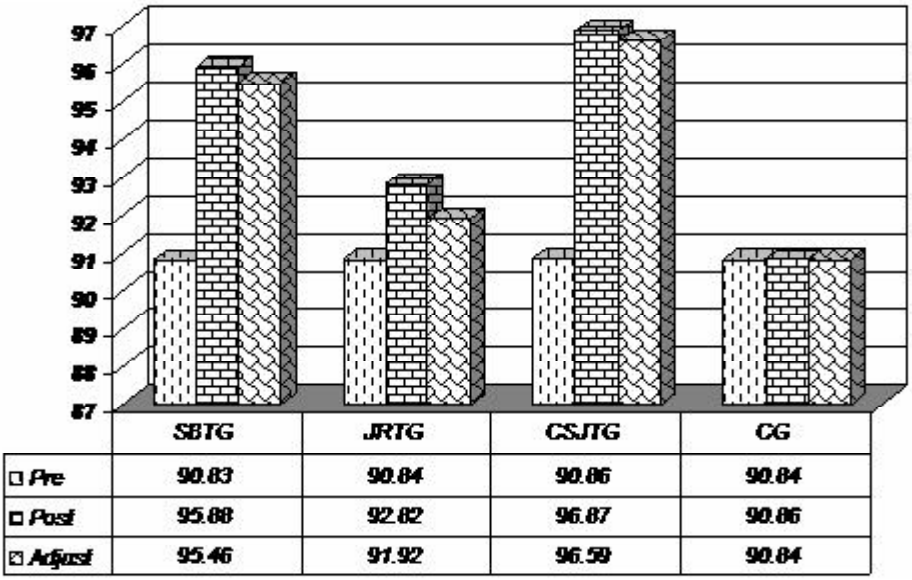
*Significant at .05 level of confidence (The table values required for significant at .05 level of confidence for df – 3-56 is 2.78 respectively)

The obtained 'f' ratio was 48.61 and the table value 2.78 Since the obtained 'f' ratio was higher than the table value of 2.78 and it was considered as statically significant, Since the result was significant the scheffe's post hoc test was used to find out the paired mean difference among groups on Leg strength.

The diagram shows the pre, post, adjusted test mean difference on leg strength between the four groups

Figure-1

Graphical Represented Pre, Post, Adjusted Mean Difference between the Groups



The scheffe's post hoc test was applied to find out the paired mean different among the groups and it was presented in Table -V.

Table-V
The Scheffe's Post Hoc Test for the Differences between Paried Mean on Leg Strength

Swissball training	Jump rope training	Concurrent training	Control group	Mean difference	Confidence interval value
95.46	91.92	---	---	3.54*	2.87
95.46	---	95.59	---	1.13	2.87
95.46	---	---	90.84	4.97*	2.87
---	91.92	95.59	---	1.08	2.87
---	91.92	---	90.84	4.62*	2.87
---	---	95.59	90.84	5.74*	2.87

*Significant at .05 level of confidence.

Findings and Discussion

Most of the concurrent effective studies were proved that the training outcomes on strength parameters were increase significantly Baker. D, (2001), many study were supported that the swissball training was improved the strength AD.Faigenbaum and WL.Westcott 's (2008-oct) and some study was proved that the Jumprope training was improve the strength Wizard Buddy Lee, (2001). To trace the effect of two different trainings were executed for twelve weeks isolated and concurrently. The finding of the study reveals that there was considerable improvement occurred on the intervention variables among the four groups. CSJTG was highly improved than the other groups at 6.60% from the pre to post test performance, SBTG was shown the second best improvement at 6.06%, JRTG was shown the third best improvement at 2.18%, and lowest influence was occurs in CG at 0.002. Hence the formulated research hypothesis was accepted.

Conclusion

There is a significant difference on leg strength between all the groups.

There is a significant improvement on leg strength due to the Concurrent Training, Swissball Training and Jumprope Training.

The concurrent training gives better improvement to comparing with the Swissball Training group and Jumprope Training.

When the paired mean difference was compared it shows that the Concurrent Training is highly significant then the other three groups.

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